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Comments:
From the SCS Chief

Making USDA Farm and Conservation Programs More Consistent

Congress is considering new farm legislation in 1985 to replace the expiring Agriculture and Food Act of 1981. An important resource conservation issue is the plow-out of fragile western rangelands.

From 1977 to 1982, more than 3.8 million acres of fragile land was converted from grass and trees to cropland—a 9.2 percent increase in fragile land cropped. Meanwhile, the Federal Government has been incurring high costs to reduce surplus crop production.

Unless an intensive conservation program is followed, annual soil erosion rates on cultivated fragile lands will average as much as 15 to 20 tons per acre per year—five to seven times the rate that can be matched by new soil formation on these lands.

The high erosion rates produce large volumes of sediment, which pollutes water and fills road ditches, natural drainage systems, and lakes. Wind erosion and loss of soil moisture negate the short-term gains from "sodbusting" within 3 to 5 years.

There's little doubt that USDA commodity programs have added incentives for plowing fragile lands by raising commodity prices and reducing producer risk.

Favorable capital gains tax treatment for the increase in land value when land is converted from uses such as grass or tree production to crop production has also encouraged plow-outs.

The intent of the proposed Agricultural Adjustment Act of 1985 is to discourage the conversion of fragile land that would suffer excessive rates of soil erosion when used as cropland.

Congress is considering denying agricultural commodity program benefits to those who break out fragile lands. Under these provisions anyone who begins tilling erodible land that has not been in production for the past 10 years would be ineligible to receive any Federal farm program benefits. The only exception would be for producers who follow a conservation plan approved by the local conservation district.

Secretary of Agriculture John Block wants to see legislation in place that discourages the future breakout of new land. Existing USDA authorities and programs are working to correct past mistakes.

The Administration and Secretary Block are committed to greater consistency in USDA farm and conservation programs.

USDA is no longer willing to subsidize producers who freely choose to cultivate fragile land without regard for the potential damage to the soil, water, plants, and related resources.

Cover: A photograph of the Ladd Marsh Wildlife Area in Union County, Oreg., won first place in a conservation district-sponsored contest. See Management Tips beginning on page 8. (Photo by Ray Hamman, Union County, Oreg.)

John R. Block
Secretary of Agriculture

Peter C. Myers, Chief
Soil Conservation Service

All programs of the U.S. Department of Agriculture are available to everyone without regard to race, creed, color, sex, age, or national origin.

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News Briefs

SCS Studies Geographic Information Systems

There's probably no outfit that could use a modern geographic information system more than the Soil Conservation Service. The challenge is to come up with the right system for SCS.

Geographic information systems (GIS's) are products of the computer age. Basically, a GIS is a set of procedures and computer programs for efficiently acquiring, storing, retrieving, analyzing, and displaying a great volume of spatially referenced data, which are data that can be presented in map form.

Most of the data used by SCS are spatially referenced. For example, the SCS soil survey, which is perhaps the most comprehensive inventory of natural resources ever conducted, consists mostly of data that are spatially referenced. Data of this site-specific nature are required for conservation planning, and conservationists in nearly every county in the Nation could use much more information about the areas where they are working if it were readily available in usable formats.

SCS plans to incorporate the soil survey and other resource-information data bases into an integrated GIS. This will allow the soil information to be combined with other geographically displayed data on such aspects as land use/cover, political boundaries, transportation, geology, hydrography, and slope. A variety of interpretive maps and other graphic displays could then be generated as needed at all levels of the agency and by SCS cooperators.

The most valuable feature of a GIS is that questions can be answered in the form of displays on maps. For example, a GIS can display areas of soils that are highly erodible, locate sites suitable for conservation structures, show the distribution and extent of prime or unique farmland, and provide data needed for locating highway corridors and utility rights-of-way with minimal impacts to agriculture and the environment. A GIS with the appropriate data bases can analyze and evaluate land areas and display the areas suitable for specified uses. Thus, GIS technology permits matching proposed land uses to the land resource—a valuable tool for conservation planners.

To acquire a GIS for SCS, the Cartography and Geographic Information Systems Division has begun a 2-year pilot study that should result in the selection and procurement of agencywide GIS hardware and software by June 1988. As a first step, SCS is buying the necessary peripheral equipment, such as plotters, digitizers, and graphics terminals, to add to its three Data General MV/8000 II minicomputers. These minicomputers are at its National Headquarters, West National Technical Center, and California State Office. The study will evaluate how well this hardware supports GIS applications. The software being used and evaluated is the Map Overlay and Statistical System (MOSS) of the U.S. Department of the Interior, one of the few GIS's in the public domain.

Plans call for a national team to meet several times during the study to prepare a final procurement document. This team will consist of SCS personnel who have gained experience in the use of GIS's with ongoing projects. The procurement document will specify the hardware and software necessary to support SCS operations. It will detail the basic needs of the agency and analyze the workload, office impact, and cost-benefit of the GIS.

In addition to MOSS, four other GIS's are being used on a limited basis to support SCS activities in several State and field offices. They are (1) ODYSSEY of the Harvard University Lab for Computer Graphics, (2) ARC/INFO of the Environmental Systems Research Institute, (3) COMPIS of COMARC Design Systms, Inc., and (4) INTERGRAPH of Intergraph Corp. These systems are being used in cooperation with several universities and other government agencies that are sharing costs, computer time, and data with SCS.

Because of the complexity of the computer programs and the large volumes of data, most GIS software packages require the larger minicomputers, such as the Data General MV/8000 II. Some limited GIS capabilities, however, are being developed on small microcomputers. In addition to the 2-year study of minicomputer-based GIS's, SCS is developing plans to acquire and test this microcomputer-based software for possible applications in field offices.

Edgar Chapman,
national GIS coordinator, SCS, Washington, DC

Computer Data Base to Improve Conservation Planning

In Tolland County, Conn., a Soil Conservation Service district conservationist is building a computer data base that will enable the field office staff to spend less time doing paperwork and more time working with land users.

In the fall of 1983, the State's soil and water conservation districts supplied the eight SCS field offices with microcomputers. SCS provided printers, software, and supplies.

Since then, SCS District Conservationist Joseph Neafsey in Vernon has been building a data base that shows where and how much soil erosion is occurring and which conservation practices and systems can best control it.

Neafsey collected data from soil surveys, watershed maps, and Agricultural Stabilization and Conservation Service (ASCS) photographic maps. Neafsey is organizing the information on a field by field basis following the ASCS numbering system. ASCS is also providing acreage data and the names of owners and operators.

"Fieldwork for the data base included verifying the information we had collected from maps, measuring the percent of slope and length of slope for each field, and recording the cropping and management system," said Neafsey. "We've completed that, and from now on we can track changes in cropping systems and land use from ASCS photographs taken each year to check compliance with feed grain programs."

For each field, Neafsey enters into the computer the location, size, owner, operator,

distance to a water body, kind of operation, tolerable soil loss ("T" value), and Universal Soil Loss Equation factors—rainfall, soil erodibility, slope length, slope gradient, crop cover, and conservation practices.

Each field is divided into segments of similar slope length and slope percent. Large fields may have as many as 20 segments, while small fields may have only one or two. The computer calculates annual soil loss for each segment and then calculates annual average soil loss for the field. The worksheet also shows the segment with the most soil loss.

Neafsey has programmed the microcomputer to compute the total annual gross erosion and the average annual soil loss per acre. The information can be recalled field by field or for all fields in a particular watershed or town.

"SCS employees wanting to build a similar data base would need a microcomputer with at least 640 K of memory and an electronic spread sheet data base management system," said Neafsey.

Neafsey is cooperating with ASCS in designing the data base, which will be useful to both agencies, especially in completing Conservation Reporting and Evaluation System worksheets for Tolland County, one of the 335 sample counties nationwide.

Said George Malia, former ASCS county executive director and now agricultural land preservation agent with the Connecticut Department of Agriculture, "The data base is a good tool for evaluating different conservation practices to be cost shared. For example, it can be used to determine how stripcropping would control soil erosion on a particular field compared to other practices or a combination of practices.

"The data base will help ASCS and SCS work together more effectively on solving the county's worst problems first," Malia said. "The data base is also a good tool for comparing soil erosion rates from year to year as farmers change and improve their management practices."

The Cooperative Extension Service plans to use the data base in its resource conservation efforts and in directing its educational efforts toward meeting farmers' specific information needs.

Neafsey plans to have all the data on computer disks by October and said his staff will be looking at printouts to pinpoint areas eroding at levels more than two times greater than "T." "We plan to visit the owners and operators of these fields to explain the erosion problems and possible solutions," he said.

"Determining alternative solutions will be much easier with our new data base," said Neafsey. "On our computer we can easily change cropping and management practices to see what's needed to reduce soil erosion rates to acceptable levels. Having this information will make our onsite planning efforts more effective."

Said Neafsey, "The goal we're aiming for with the data base for Tolland County is to make our staff as effective as possible, cost-wise and conservation-wise."

The director of the Information Resources Management Division in SCS National Headquarters in Washington, DC, John Okay, said that computer software similar to Neafsey's automated data base system is being developed for the microcomputers that will eventually be installed in every SCS field office. A pilot test of the software began this spring and will end in November.

Nancy M. Garlitz,
associate editor, *Soil and Water Conservation News*, SCS, Washington, DC

Microcomputers Help Plan Conservation

Conservationists may soon be spending less time studying maps, flipping from table to table in soil survey reports, comparing notes, poring over technical guides, assembling data from different manuals, and wrestling with soil-loss equations. They will have microcomputers to do such work.

A few conservationists in Colorado and elsewhere in the Soil Conservation Service are using microcomputers to organize and analyze the massive amounts of information they have for managing natural resources. They are testing a computerized data base management system, called the Soil Resource Information System (SRIS), that focuses on providing resource data and planning tools to SCS conservationists at the district level.

To help land managers make reliable decisions, SCS employees must often integrate soil, climate, vegetation, management, and economic information from more than one source. Combining data about natural resources with other data, however, is a difficult and time-consuming task. SRIS is an attempt to organize and manage these data and to provide quick access to the data through a single facility. It has been successfully used in Colorado for such tasks as predicting erosion rates under various treatment levels for a watershed project.

Basically, SRIS takes data sets that are already stored in centralized computers and makes them available for easy use at the local level. There are two major goals: (1) to integrate the tabular data of soil surveys with other natural resource data and (2) to link these data with field applications used by land managers and the information in technical guides.

SRIS currently contains data on soils, range sites and plant characteristics, and climate. The soil information is the SCS Map Unit Record (SOI-6), the Soil Interpretations Record (SOI-5), and an additional set of data that includes attributes such as elevation. Data on range sites and plants were developed from the SCS range site descriptions and other range information. Climatic data were obtained from weather station summaries. All are linked to the soil map unit record and can be combined with a Client Operating Record (COR) that contains basic information about the land manager, such as name, address, type of farming operation, and acres managed.

Additional data sets can be added, and sets for conservation management and economics are being developed. Eventually, SRIS will be linked with a geographic information system (GIS) that will allow easy retrieval and analysis of spatial data such as digitized soil maps. SCS has embarked on a 2-year study of six available GIS's for this purpose. (See article on page 3.)

Two planning tools incorporated into SRIS are the Universal Soil Loss Equation and the Wind Erosion Equation. These tools require no computer training to use. To operate, the user simply provides the map unit symbol of

the soil in the area being evaluated. The SRIS program obtains from the data base the soil and climatic factors required for the erosion equations. The user may change any data obtained from the data base or provide data that are not stored, such as the slope length. The computer then calculates erosion losses under current management and lists options for applying conservation practices to reduce erosion to an acceptable level.

Another effective use of SRIS is the interactive query. This allows a resource specialist who may have little knowledge of programming language to use a microcomputer to ask questions of the data and obtain an immediate response. For example, a user could ask for a list and the total acres of soil in capability class II and III that yield more than 20 bushels of wheat per acre and occur within Major Land Resource Regions D, G, or H. (These soils are recognized as "Farmlands of Statewide Importance" in Colorado.) Another query might be to list the pH, available water-holding capacity, salinity, hydrologic group, and organic matter content of all the soils in a particular range site. Such queries usually stimulate additional queries and result in better use of the data.

The testing in Colorado involves three field offices, five area offices, and the State office. Soil scientists and range conservationists are using the system in the area offices. The State office has saved considerable staff time by using SRIS to compile reports on soils and climate, by county, and prime and State-important farmland, by county.

SRIS is being developed by SCS, Colorado State University, and a private consulting firm with expertise in systems analysis and design. It has also been introduced in Indiana, and a subset is being used by the Soil-Range Team in Nevada. Plans call for all SCS State offices to have access to the system by the summer of 1986.

Dave Anderson,
staff leader, Information Resources Management, SCS, Denver, Colo.

SCS Receives Federal Design Achievement Award

The National Endowment for the Arts presented the Soil Conservation Service with a Federal Design Achievement Award in January. The award was for a floodwater detention basin and accompanying structures in the Lower Pine Creek Public Law 83–566 small watershed project in California.

The Lower Pine Creek project was one of 91 entries chosen from 630 to receive an achievement award through the Presidential Design Awards Program, the first governmentwide effort to recognize and foster excellence in Federal design.

The Endowment recognized the Lower Pine Creek watershed project for how well it blends with the surrounding landscape and for a high level of public participation, a multidisciplinary team approach to planning and design, and completion under budget and ahead of schedule.

The project area lies in the rolling foothills of the coastal range near San Francisco in Contra Costa County, Calif. It is an area of small farms and orchards, cattle and horse ranches, upper-middle income neighborhoods, and open space used for recreation.

SCS at the State and local level; local sponsors (the Contra Costa County Flood Control and Water Conservation District and the Contra Costa County Resource Conservation District); and local residents worked together to develop an award-winning project design that will reduce flooding downstream in the city of Walnut Creek and enhance recreation opportunities and wildlife habitat at the project site.

Construction of the 40-acre detention basin, an inlet structure, principal spillway, and emergency spillway began in 1980 and was completed in early 1982, 3 months ahead of schedule. The final project cost was $1.5 million less than the estimated cost.

The entire project is designed to blend in with the surrounding landscape. The sideslopes of the basin are varied and irregular, and islands of vegetation and high areas left in the middle provide visual interest.

A dark grey curing compound used on the concrete inlet and outlet structures and emergency spillway wall reduces the light reflected off their surfaces. Vertical ribbing of the concrete on the spillway headwall makes it more attractive and appear less wide. Rock riprap areas are covered with earth and planted with grass.

A mixture of erosion control grasses and wildflowers protects slopes around the site. Large groups of native oaks and linear groups of walnut trees were saved to provide screens between neighborhoods and provide food and shelter for wildlife.

Native trees and shrubs were planted to serve as additional screens and wildlife habitat. A drip irrigation system was installed to ensure that the new plantings will become well established.

The Lower Pine Creek small watershed project is designed to protect a 1,380-acre floodplain from storm events up to the 100-year frequency. During severe winter rains the detention basin will hold up to 300 acre-feet of excessive flows from Pine Creek and slowly release the water over a 72-hour period. During most of the year the basin will be dry.

Through innovative construction and landscape design, the Pine Creek project has succeeded in providing flood protection downstream while preserving the recreation and scenic values important to the people who live closest to the project.

Nancy M. Garlitz,
associate editor, *Soil and Water Conservation News*, SCS, Washington, DC

Costly Gullies Delay Harvest

Hugh Kinsey is a conscientious conservation farmer. His cropland in northeast Kansas is fertile, but hilly and highly erodible. He protects it with a complete system of soil and water conservation practices—terraces, conservation tillage, grassed waterways, and crop rotation.

When about 12 inches of rain fell in his area during a 3-day period last June, Kinsey was glad he had that protection. The land that he, his parents, and his grandmother own in Doniphan County, and which he farms, sustained practically no gully erosion during that deluge. Kinsey could look all around, however, and see unterraced fields in his neighborhood where soil erosion destroyed about 20 percent of the crops and washed more soil from the land than nature could restore in several thousand years.

What Kinsey did not realize were the pitfalls that lay ahead of him on land he rents from other people. In October, when he pulled his combine into a rented field south of Troy to harvest his corn crop, several deep gullies, out of sight beneath the corn, were waiting for him. The landowner had applied no conservation practices.

Before Kinsey knew what was happening, a combine wheel fell into a deep gully. A work crew pulled the combine out with a tractor, but the header caught on the edge of the gully, bending and breaking the feeder housing. Repairs cost nearly $2,000, and the combine was out of service during a critical day and a half of harvest.

Kinsey thought he was being careful, but several days later the same thing happened on unterraced land he rents north of Troy. A combine wheel fell into a small gully, and the header jammed into the ground. After several hours of labor in removing the header and then pulling the combine out, he discovered that the feeder housing was again bent and broken. Repairs took another day. Two days after that, the combine sustained a broken spindle when a wheel hit another gully.

"I am really having second thoughts about taking my expensive machinery onto land that is not terraced," Kinsey said. "I certainly can see a big difference between the crop stands where soil conservation practices are used and where gullies washed out the crop and took soil, herbicides, and fertilizer down the Missouri River. My experience last June and October is another example of how soil conservation does not cost, but rather pays for itself."

Soon after Kinsey's accidents, both landowners signed up at the Soil Conservation Service office in Troy to have terraces with tile outlets installed on their farms. According to John Meisenheimer, SCS district conservationist at Troy, Kinsey strongly encouraged the owners to terrace their land if they wanted him to keep farming it. Since then 1,930 feet of tile-outlet grass-backslope terraces have been built on the farm north of Troy. On the farm south of Troy, 4,300 feet of similar terraces have been installed.

A hidden gully caused $2,000 worth of damage to Doniphan County, Kans., farmer Hugh Kinsey's combine last October as he harvested his corn crop on rented land. After two similar incidents on other land he rents, Kinsey encouraged the landowners to install terraces on their farms.

Fred L. Trump,
public affairs specialist, SCS, Salina, Kans.

Conservation Tillage Acreage Increased in 1984

American farmers practiced conservation tillage on more acres in 1984 than ever before. According to the Conservation Tillage Information Center (CTIC) of the National Association of Conservation Districts, conservation tillage was practiced on nearly 97 million acres out of a total of about 327 million acres cropped.

Conservation tillage is any tillage and planting system that keeps at least 30 percent of the soil surface covered by residue after planting to reduce soil erosion by water or, where soil erosion by wind is the primary concern, keeps the equivalent of at least 1,000 pounds per acre of flat small-grain residue on the surface during the critical erosion period. It includes no-till, ridge-till, strip-till, mulch-till, and reduced-till.

Reporting on its third annual survey of the practice, the CTIC said conservation tillage was applied on nearly 10 million more acres in 1984 than 1983. At the same time, the CTIC noted, there was a slight decrease in the percentage of the planted acreage that was cropped with conservation tillage—from 31 percent in 1983 to 30 percent in 1984.

Two major reasons were suggested for the decrease in conservation tillage relative to the total acres cropped. First, there was an increase of nearly 50 million acres in total cropland planted since acres diverted from production in 1983 through the Payment-In-Kind (PIK) program were brought back into production in 1984. Second, there was an improvement in the accuracy of the survey

itself. In 1984 there was a better understanding of the definitions and a closer adherence to the residue requirements by those reporting the data. Accuracy was also increased by the field staffs having become more accustomed to the survey and being better prepared from the beginning of the planting season.

The acreage survey was conducted on a county-by-county basis by field staffs of the Soil Conservation Service and other USDA agencies, along with assistance from State and local organizations.

New to the 1984 survey is a report on trends in the adoption of conservation tillage. This report, which is based on the percentage of change between 1983 and 1984, can be used to make comparisons by tillage type, crop, and State.

Kansas, with nearly 12 million acres, and Iowa, with about 10 million acres, were again ranked first and second of all the States in the total acres of conservation tillage. In the Pacific States Region, the use of conservation tillage nearly doubled.

Of the different types of conservation tillage, no-till showed the greatest rate of growth on a national basis. The percentage of planted acres in no-till increased from 3.6 percent in 1983 to 4.4 percent in 1984—a 20 percent increase. In the Corn Belt, a significant increase occurred in the acres of ridge-tilled corn, up about 117,000 acres for an estimated total of nearly 478,000 acres.

Copies of the complete report, the executive summary, State summaries, county summaries, and the trends report are available from the Conservation Tillage Information Center, 2010 Inwood Drive, Executive Park, Fort Wayne, Ind. 46815. The center can also provide acreage data on computer tape and produce custom reports.

Wichita Golf Course Features Natural Setting

When you think of a golf course, especially the greens, you think of short grass. So when a golf course in Wichita, Kans., calls itself the Tallgrass Club, you wonder what kind of course it is.

The Tallgrass Club takes its name from the extensive landscaping done when the course was built. The landscaping plan featured the 10 leading Kansas native grasses and included trees and shrubs native to Kansas, along with several kinds of wildflowers for ground cover.

The Tallgrass Club named each tee for a native grass or wildflower and placed a picture and brief description of them at each location. A planting was made around each sign. For example, the number one tee is named Big Bluestem Tee. Some others are Switchgrass Tee, Indiangrass Tee, and Little Bluestem Tee.

"The club wanted to promote natural tallgrass prairie grasses as well as the environment," said Larry Henry, Soil Conservation Service district conservationist at Wichita. "The golf course closely represents the natural mixing of grasses and flowers previously found there." Henry and his staff furnished technical assistance on the project.

The club received the Kansas Gas and Electric Company's Urban Conservation Award for its efforts in controlling wind and water erosion, in addition to its emphasis on a natural environment.

The American Society of Golf Course Architects has called the course one of the Nation's 25 leading new golf courses making use of natural design concepts.

Fred L. Trump,
public affairs specialist, SCS, Salina, Kans.

Switchgrass Tee—landscaping at a Wichita, Kans., golf course included plantings of native grasses or wildflowers at each tee, along with a picture and description of the plant.

Management Tips

Readers are invited to submit "Management Tips" to the editor, *Soil and Water Conservation News*, Soil Conservation Service, P.O. Box 2890, Washington, DC 20013–2890.

Conservationists Take to the Air to Assess Crop Residue

Measuring crop residue to assess soil erosion protection is a time-consuming task for conservationists in the Palouse region of northern Idaho. But a new technique using airplanes, video cameras, 35mm color slides, and a computer is saving time and providing more accurate information.

Doug Harrison, Soil Conservation Service remote sensing specialist, and Floyd Bailey, SCS agronomist in Boise, and I started experimenting with the technique in October 1983, using computerized photographic analysis equipment that can identify and measure crop residue on 35mm aerial photos. The technique is known as Video Image Analysis (VIA). The VIA system uses a closed-circuit video camera and computer to scan and process information from the photos.

To set up the project, we laid out 16 individual transects on fields with 82 different slopes and a variety of management practices and levels of crop residue. The local SCS district conservationist and I visited each field to measure residue at the onset of the critical winter erosion period.

Then we flew over the transects in an airplane with a photo port, using a single lens reflex 35mm camera to take color slides of each field. Back in the office, we analyzed the crop residue on the 35mm slides with the VIA system and compared results to our on-ground measurements.

We found a high degree of correlation between the on-ground measurements and photographic interpretations. About 83 percent of all samples were within plus or minus 10 percent of those measured on the ground. We also discovered that the larger sample size obtained from the air produced more accurate results than on-ground measurements, because it was easier to see the distribution of crop residue within a transect.

We flew the transects again in the spring of 1984, preceded by on-ground measurements.

In October 1984 we used the system to monitor crop residue levels on two projects served by the Moscow SCS field office. We flew six parallel flight lines across the newly authorized Thorn Creek land treatment watershed project and took 35mm color slides representing about one-fourth of the 600 fields in the watershed. The analysis showed 20 percent of the watershed was adequately protected with crop residue and permanent cover for the coming erosion season. The watershed will be flown annually to chart the progress of crop residue use and conservation tillage application.

The Moscow field office staff is also using the VIA system to improve conservation tillage compliance checks of fields under contract in a State agricultural water quality project on the South Fork of the Palouse River. SCS District Conservationist Ken Houska uses the image analysis to show farmers the amount of crop residue they have on their fields and to plan needed or improved protection. According to Houska, the VIA system is cutting the time required to evaluate crop residue by 70 percent. It is also providing more accurate information for an effective local conservation program and has been well received by local farmers.

Harry J. Riehle,
area agronomist, SCS, Moscow, Idaho

Iowa Students Make Conservation Telephone Calls

A group of junior high students in Monroe County, Iowa, last fall telephoned about 100 local farm operators to encourage them to apply conservation practices. The students volunteered to call farmers as part of the "No Fall Tillage Campaign" of the Monroe County Soil Conservation District.

The district provided the students with a list of prospective conservation farmers and a short conservation message. The students made the calls from their own homes in the evening and urged the farmers to not plow in the fall and to use no-till in the spring.

In all, 13 students from the 7th and 8th grades of the Lincoln Middle School in Albia made the calls. They later received special recognition from the Governor for their effort.

The telephone campaign was conducted in conjunction with other promotional activities to discourage fall plowing, including the taking of pledges and the awarding of prizes at farm-related businesses. Radio announcements and newspaper articles explained the purpose of the campaign.

According to John Frieden, SCS district conservationist, most of the farmers were very receptive to the calls. He said he noticed an increase in the number of farmers seeking SCS assistance after the telephone campaign and plans to repeat the campaign this fall.

There are approximately 1,200 farm operators in the county, Frieden said, and most grow corn and soybeans and maintain pasture for beef cattle. He said a total of 170 farmers signed no-fall-plowing pledges at 15 locations across the county during the campaign.

Conservation District Promotes Small Woodland Demonstration Areas

To encourage timber stand improvement, a conservation district in eastern Oklahoma helps woodland owners set up their own miniature demonstration areas. These areas are only a tenth of an acre, but they give landowners valuable hands-on experience in the "how to's" of forest improvement.

Since the program began last year, the LeFlore County Conservation District has helped 10 woodland owners set up these small plots and learn such practices as hardwood control for site preparation and release, proper marking and tallying of overstocked stands, and wildlife habitat improvement. Using their experience on the tenth-acre plots, landowners can estimate the cost and labor required to improve their woodland, both on a per-acre and a total-tract basis.

The district provides all the tools and materials and trains the landowners on the use of the tools. The landowners provide most of the labor and agree to show and describe their demonstration areas to neighbors and encourage them to practice sound forestry.

Approximately 90 percent of the farms and ranches in the county have some woodland, and the district believes this approach will be an effective way of encouraging many owners to improve their woodland. This program will also increase the number of demonstration areas in the district, making it easier for area foresters to arrange woodland tours.

Eventually, the district plans to expand the program and use larger plots to demonstrate practices such as seedbed preparation for natural reseeding of pine and agroforestry test areas where cattle and pine are managed simultaneously.

Stephen C. Tullar,
woodland conservationist, LeFlore County Conservation District, Poteau, Okla.

Photo Contest Focuses on Conservation

How can you reach more people with the conservation message? A conservation district in eastern Oregon did with a photography contest.

The Union Soil and Water Conservation District—like most districts—wanted to tell local residents about the importance of soil conservation and how conservation districts work to improve the environment. Realizing that many people are amateur photographers, district officials decided to sponsor a photography contest.

Union County is rural and sparsely populated. To encourage broad participation, the officials allowed entries to be slides or prints, in color or black and white. They stipulated only that the entries be related to the wise use of conservation resources, a requirement they thought would encourage the competing photographers to learn about conservation districts and soil conservation.

They were right. More than 100 entries were received, and most of these revealed at least some knowledge of conservation on the part of the photographers. "The variety of pictures was astounding," said Jeanne Clark, district clerk, "and the contest was a lot of fun."

Although officials were pleased with the results, they say there were some things they would do differently if they had another photo contest. For example, they obtained good publicity with an ad at the local radio station, two newspaper articles, and personal contacts at the local college and high school, but they suggest film-development locations would also be good spots for promotion.

They also learned that timing is important. The contest was held in February and March when the district was busy preparing its annual report and holding its annual meeting. The district board members, who served as judges, were overwhelmed with the response to the contest. They allowed a 2-week period for photos to be entered and announced the winners only a week later. This kept the judges very busy. Officials say a later date in spring would have fit their schedule better and most likely would have resulted in better weather for outdoor photography.

The winners received dinner for two at a local restaurant, a gift certificate from a nursery, and a $20 beef certificate. Their photos were enlarged and displayed in the Union County Ag Service Center. For the district, the contest provided a better understanding of the district's role in the community and a new interest in soil conservation on the part of the contestants.

Shirley Boothby,
public affairs specialist, SCS, Portland, Oreg.

Group Planning Yields Personalized Conservation Plans

Throughout America's dairyland, farmers are developing conservation plans by attending group planning sessions—an old technique that still works as efficiently as ever.

Group planning was commonly used by the Soil Conservation Service in the 1950's before direct, one-to-one assistance to landowners became the norm. About 4 years ago, several conservationists in Wisconsin began using group planning for farmers with similar conservation needs, such as the dairy farmers in a certain area. Today, nearly half of the State's SCS district conservationists are using this method.

Group planning is more than farmers getting together to discuss their erosion problems. It's an educational experience, and many do homework between meetings. Several government agencies provide the groups with the latest information on animal waste systems, conservation tillage, nitrates in ground water, woodland management, and cost-sharing programs.

"To be successful, a group planning session must be well organized," said Mike Smith, SCS area conservationist in Eau Claire. "The field office staff must walk over each farm and be knowledgeable about its problems. The tools must be on hand to make full use of the farmers' time in the group session."

The participating farmers attend training sessions 1 day a week for 4 weeks. After learning how to calculate erosion rates, each farmer plans a management system to keep topsoil losses within recommended limits. One may decide on chisel plowing on the contour to control erosion while another may choose a crop rotation system. Most are able to get their soil losses down to tolerable levels once they realize how serious the problem is.

How do the farmers react to the group planning sessions? One farmer found he can grow as much corn as before, only now he can do it without losing so much topsoil. Another said that he now understands the erosion on his farm better, and, more importantly, he has the tools to reduce it.

Many of the conservationists involved feel that group planning is effective because it is done with—not for—people. "The plan should be the farmer's," one said, "not SCS's. Only the farmer can decide to accomplish conservation."

Gregory R. Hines,
district conservationist, SCS, Eau Claire, Wis.

Yule Trees Staked to Rebuild Dunes

Discarded Christmas trees are being tested for dune stabilization along the Atlantic Coast in south Florida. About 2,000 Christmas trees are tied to wooden stakes on a storm-damaged beach near Stuart in an effort to rebuild dunes by trapping windblown sand.

The project is an experiment by the Martin County Soil and Water Conservation District. If it works, the rebuilt dunes will be planted to vegetation such as sea-oats. Similar projects have had some success on Long Island, N.Y., and in Virginia, South Carolina, and north Florida.

The trees were donated by local residents and a few dealers who were left with unsold evergreens after the Christmas holiday. About 100 volunteers—many of them youngsters from scouting groups—spent part of a Saturday in early January staking the trees along the dune line of an 850-foot stretch of Bob Graham Beach, which is owned by the county. The trees were placed on their sides, canopy-to-canopy, in a zigzag pattern to catch sand from all directions.

According to Bill Bossuot, resource conservationst for the district, public enthusiasm for the project was overwhelming. Bossuot said so many trees were donated that he eventually had to request that people bring no more trees to the beach.

Bossuot said early results of the experiment have been encouraging, despite some unusually fierce winter storms that did further damage to the beach. He said the trees have three advantages over some other methods of dune stabilization: they are free, they contribute organic matter to the soil, and they would have to be disposed of anyway. If the experiment works, the district plans to expand the program to other beaches next year.

Scouting groups were among those who volunteered to help the Martin County Soil and Water Conservation District in south Florida with a dune stabilization project. The community donated about 2,000 Christmas trees for the project.

Shaving Cream Marks the Spot for Sprayers

Want to avoid costly gaps and overlaps while spraying your field with pesticides or herbicides but can't afford $1,000 for a boom-end marking system? Try marking where you have sprayed with shaving cream.

The Agricultural Research Service of the U.S. Department of Agriculture has developed a method of attaching a can of shaving cream to the end of a spray boom so that the area sprayed can be accurately marked. Blobs of shaving cream are dispensed onto the ground with the tug of a string and used to guide the spray rig on the next pass across the field.

The device, called the Poor Man's Marker, can be built with simple hand tools, a few scraps of plastic pipe, some string, and a few other odds and ends. Complete instructions are available from the Snake River Conservation Research Center, Route 1, Box 186, Kimberly, Idaho 83341.

Fire Changes Soil Survey Storage

As a result of a fire, the storage of published soil surveys in Pennsylvania has been decentralized. Each field office of the Soil Conservation Service now keeps its own bulk supply of surveys instead of relying on a central depository for the whole State.

Published surveys require storage because of their relatively long shelf life. Most are used in the area surveyed and are distributed for 20 years or longer.

Storage procedures were changed in Pennsylvania after approximately 110,000 surveys of 40 counties were destroyed in a 1982 fire. Only 2,244 surveys were salvaged from the rented storage facility in Enola where the fire occurred.

The loss was estimated at more than $500,000. Funds have been made available to reprint approximately 20 percent of the total surveys destroyed.

Garland H. Lipscomb,
State soil scientist, SCS, Harrisburg, Pa.

Soil-Loss Computer Game Developed in Iowa

Reduce soil losses before time runs out. That's the object of "Our Thinning Topsoil," a computer game developed in Iowa by the Soil Conservation Service and the Iowa Department of Soil Conservation (IDSC).

About 1,000 people played the game when it premiered last year at the Iowa State Fair in Des Moines. Since then several conservation districts in the State have displayed the game at county fairs. It has also been set up at statewide farm meetings.

The game is fast and simple. "We tried to write it so anyone could sit down and play it," says Dale Bruce, an SCS public affairs specialist who wrote the program. Most of those who play, win.

Sounds and graphics are used to gain attention. The first visual display is a block of topsoil that is slowly depleted to reveal the message: "Time is Running Out on Our Topsoil. In 100 years of farming, we've lost an average of 6-8 inches of topsoil from Iowa cropland. That's 1/16 inch each year. At that rate we'll lose most of the topsoil in the next 100 years."

The computer then asks the player to press "S" to save the topsoil. (At this point the program will recycle if no one plays, so there is always sound and action on the screen.) The next screen shows a field the player is to farm and a tractor plowing up hill. To win, the player must save the soil in the field before 3 inches of topsoil are gone.

The player is shown a list of five conservation practices to choose from—contouring, crop rotation, no-till, stripcropping, and terraces. As a practice is selected, the new reduced rate of soil loss is displayed. If the loss is still more than 5 tons/acre/year, the computer asks the player to pick another practice.

"While you're deciding which practice to apply, the topsoil is depleting," Bruce says. A warning flashes when 1 inch of topsoil is gone and another when 2 are gone. Players lose if they don't pick enough practices to reduce the rate of soil loss to below 5 tons/acre/year before the 3 inches are lost. Those who get the rate to below 5 tons/acre/year are congratulated and told their topsoil should now last indefinitely.

The program runs on a Commodore 64 computer, disk drive, and monitor that were purchased by the IDSC. Additional information can be obtained from Dale Bruce, SCS, 693 Federal Building, 210 Walnut Street, Des Moines, Iowa 50309.

Lynn Betts,
public affairs specialist, SCS, Des Moines, Iowa

Conservation District Uses "Wanted" Posters in Weed Hunt

Spotted knapweed is "wanted" in western Montana. Wanted dead, that is.

The Lewis and Clark County Conservation District recently joined the fight against spotted knapweed by helping to print "wanted" posters that describe the weed and urge that it be reported. The poster, which depicts the weed as a frontier fugitive, has been distributed across western Montana and in several adjoining States and Canadian Provinces where knapweed has spread in epidemic fashion during recent years.

Spotted knapweed *(Centaurea maculosa)* is a short-lived perennial forb that blooms with pinkish-purple flowers from early July through August. It was introduced into this country in the early 1900's and is now the number one weed problem on rangeland in western Montana, where it infests more than 2 million acres. It reduces forage, damages wildlife habitat, and can double the rate of soil erosion on rangeland.

The wanted poster was printed by the conservation district, the local weed control district, and the Extension Service of the U.S. Department of Agriculture. Local 4–H clubs helped with the distribution.

"The purpose of the project is to create a community awareness of the knapweed plant," said Arnold E. Quale, Soil Conservation Service district conservationist, Helena. "If people are aware of the damage knapweed can do, they will react and seek assistance in controlling the menace."

Although knapweed can invade range that is in good condition, it most readily invades land that has been disturbed or overgrazed. It has an early spring growth that makes it very competitive for soil moisture and nutrients. It also releases chemicals into the soil that retard the growth of surrounding vegetation.

The poster includes a color photograph and drawings to help identify the weed. Readers who "see or find the above robber of range and cropland" are urged to contact their nearest conservation district, weed control district, or office of the Extension Service. These agencies then make recommendations to the landowner on how to control the weed. The rewards, the poster says, are range grass and cropland production.

According to Quale, the poster has generated more than 1,000 inquiries and contributed to a ground swell of activity and support for controlling knapweed. "People from all walks of life are asking questions, seeking solutions, and mobilizing toward some action. In general, the public is aware of the menace and recognizes a need for community and county efforts for a program to effectively control the weed," he said.

Sound range management that includes proper stock distribution and stocking rates and correct season of use will slow the rapid spread of spotted knapweed and its two close relatives, diffuse knapweed *(Centaurea diffusa)* and Russian knapweed *(Centaurea repens)*. Eradication of established knapweed stands usually requires herbicides. Seed-head flies, which damage the plant by depositing eggs on its flowerbuds, are also being used with some success in controlling spotted knapweed.

About 8,000 of the wanted posters have been printed on 8½- by 11-inch paper, 18- by 24-inch paper, and placemats. A newspaper with a circulation of 23,800 also published a copy in one of its issues.

Frank Thompson,
chairman, Lewis and Clark County Conservation District, Helena, Mont.

Meetings

July

1–12	World Forestry Congress, Mexico City, Mexico
7–10	Potassium in Agriculture Symposium, Atlanta, Ga.
23–26	National Wilderness Research Conference, Fort Collins, Colo.
28–31	Society of American Foresters, Fort Collins, Colo.
30–Aug. 2	Symposium on Coastal and Ocean Management, Baltimore, Md.

August

4–7	Soil Conservation Society of America, St. Louis, Mo.
11–14	Association of State and Interstate Water Pollution Control Administrators, Portland, Oreg.
11–16	American Water Resources Association, Tucson, Ariz.

September

7–11	American Fisheries Society, Sun Valley, Idaho
8–10	World Fertilizer Conference, New York, N.Y.
8–12	National Farm and Power Equipment Dealers Association, Louisville, Ky.
9–13	Association of Official Seed Certifying Agencies, Fargo, N. Dak.
11–15	American Horticultural Society, Chicago, Ill.
27–Oct. 2	North American Association for Environmental Education, Chevy Chase, Md.
29–Oct. 3	National Association of County Agricultural Agents, Hershey, Pa.

October

5–8	Farm and Industrial Equipment Institute, Vancouver, British Columbia, Canada
6–10	Water Pollution Control Federation, Kansas City, Mo.
7–10	National Council of State Garden Clubs, St. Louis, Mo.
13–16	American Forestry Association, Traverse City, Mich.
21–25	American Society of Civil Engineers, Detroit, Mich.
28–31	Geological Society of America, Orlando, Fla.
31–Nov. 3	National Association of Biology Teachers, Orlando, Fla.

November

10–12	National Association of State Universities and Land-Grant Colleges, Crystal City, Va.
11–18	National Grange, Eugene, Oreg.
13–16	International Symposium on Applied Lake and Watershed Management, Lake Geneva, Wis.
17–20	American Society of Farm Managers and Rural Appraisers, Kansas City, Mo.
17–21	International Drip/Trickle Irrigation Congress, Fresno, Calif.

December

1–5	Western Forestry and Conservation Association, Spokane, Wash.
1–6	American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America, Chicago, Ill.
3–5	National Farmers Organization, Des Moines, Iowa
8–13	National Symposium on Surface Mining, Hydrology, Sedimentology, and Reclamation, Lexington, Ky.
9–13	American Geophysical Union, San Francisco, Calif.
15–18	Midwest Fish and Wildlife Conference, Grand Rapids, Mich.

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